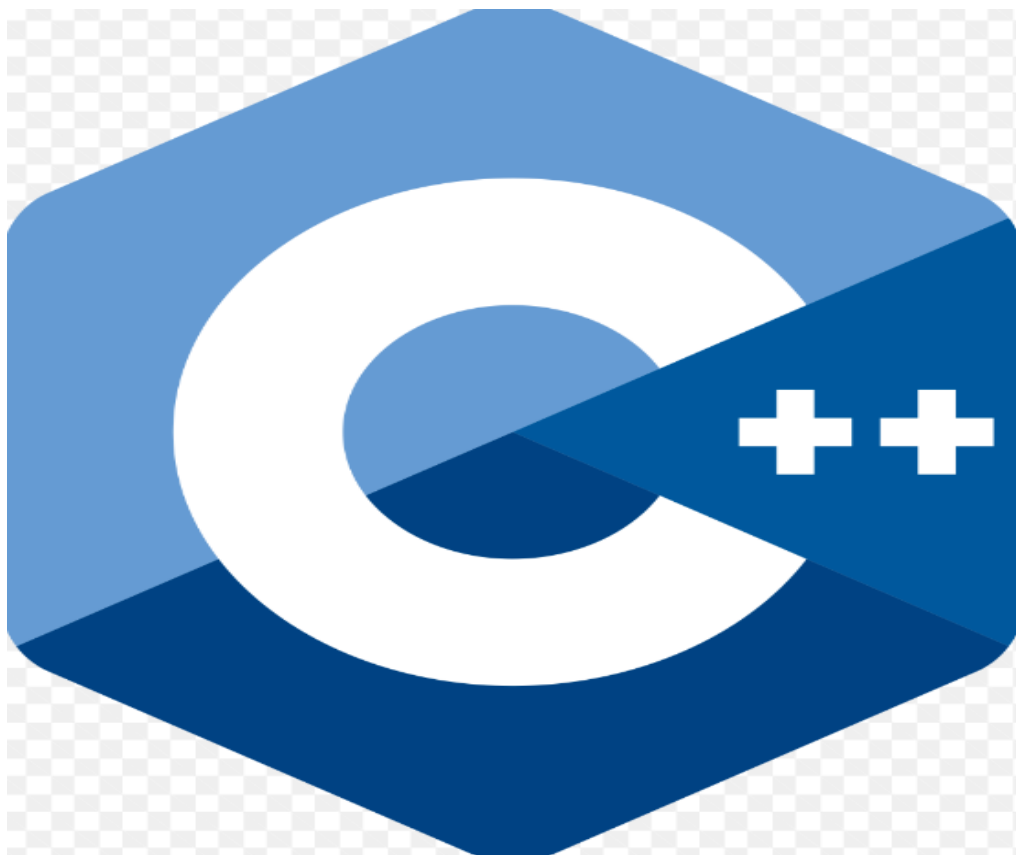


C++ PROGRAMMING



Learning verse

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Introduction

C++ is a general-purpose, free-form programming language that supports object-oriented and generic programming. It was developed by Bjarne Stroustrup in 1979 at Bell Labs. It runs on a variety of platforms such as Windows, Mac OS and various versions of UNIX. It is the most widely used programming language in application and system programming.

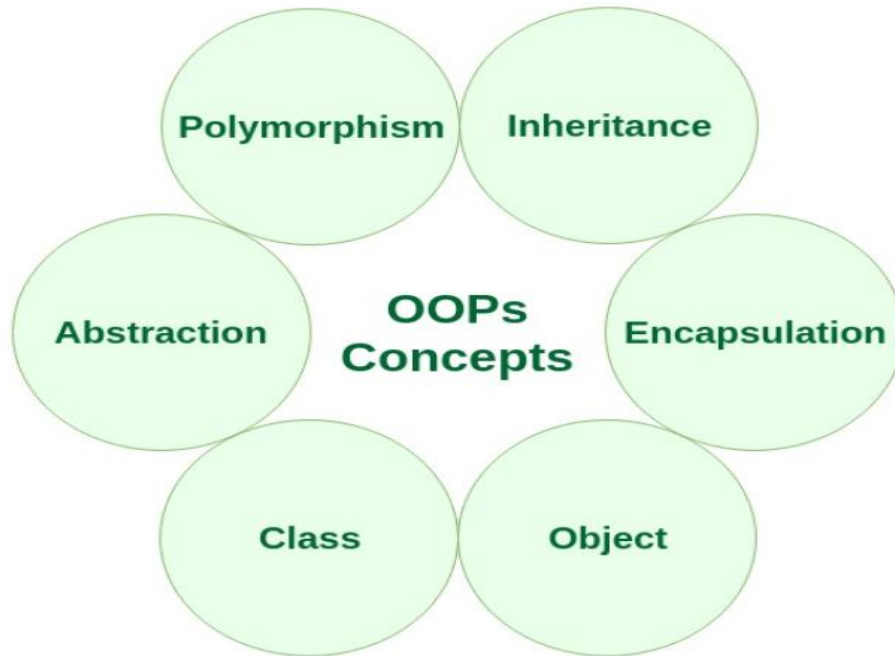
Applications of C++ Programming

- Banking Applications
- Embedded systems
- GUI based Applications
- Web browsers
- Compilers

Difference between C and C++

C	C++
C is structure/procedure oriented programming language	whereas C++ is object oriented programming language.
C program design is top down approach	whereas C++ is using bottom up approach.
Polymorphism, virtual function, inheritance, Operator overloading, namespace concepts are not available in C programming language.	Whereas C++ language supports all these concepts and features.
C language gives importance to functions rather than data	Whereas C++ gives importance to data rather than functions.
So, data and function mapping is difficult in C.	But, data and function mapping is simple in C++ that can be done using objects.
C does not support user define data types.	C++ supports user define data types.
Exception handling is not present in C	exception handling is present in C++ .

Basic OOPS Concept in C++



- **Class:** It can be defined as the blueprint of the object.
- **Object:** An object is the combination of data and programs, which is further represented as an entity.
- **Encapsulation:** The wrapping of data and functions together under a single unit is called as encapsulation.
- **Inheritance:** Here the objects of one class acquire properties and features of other class. The class which inherits the feature is called child class and the class whose feature is inherited is called the parent class.
- **Polymorphism:** It is the ability to take more than one form. It is a feature that provides a function or an operator with more than one definition.
- **Abstraction:** It helps in displaying the essential features without showing the details or functionality to the user.

C++ program structure

Sample code:

```
#include <iostream>
using namespace std;

// main () is where program execution begins.
int main ()
{
    cout<< "Hello World"; // prints Hello World
    return 0;
}
```

- The C++ language defines several headers, which contain information that is either necessary or useful to your program. For this program, the header is <iostream>.
- Using namespace std means that we can use names for objects and variables from the standard library.
- The next line ‘// main()’ is a single-line comment available in C++. Single-line comments begin with // and stop at the end of the line.
- The line int main () is the main function where program execution begins.
- The next line cout << "Hello World"; causes the message Hello World to be displayed on the screen.
- The next line return 0; terminates main () function and causes it to return the value 0 to the calling process.